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WATER SUPPLY OUTLOOK FOR MONTANA

U.S. DEPT. OF AGRICULTURE
JAN 13 1977



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF
JAN. 1, 1977

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.
ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

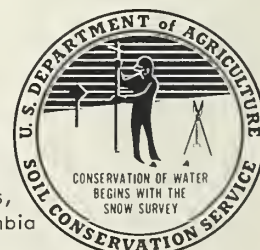
The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

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MONTANA WATER SUPPLY OUTLOOK

January 1, 1977

* * * * *

* Snow cover is poor in all drainages. Water
* stored in the mountain snow pack is generally
* 30 to 50 per cent average. Storms near the
* beginning of the year have helped improve
* conditions only slightly.

* Soils under the snow pack are drier than
* normal in all areas except for near average
* soil moisture in the extreme southwest
* corner of the state. Unless

* Unless drastic changes occur in the weather
* pattern, water users throughout Montana can
* expect well below average streamflow next
* spring and summer.

* * * * *

COLUMBIA RIVER DRAINAGE

Snow - Early season snow pack has been very light in all headwaters areas. Most snow course water equivalents were near minimum of record for this date. The density of snow pack is very light, generally in the 18 to 20 per cent range. Soil moisture under the snow pack is also below average.

Streamflow - Volume forecasts of runoff will be issued after February 1 snow surveys. However, based on current snow pack and soil moisture conditions, runoff in the range of 60 to 75 per cent average is possible. The lack of high elevation snow will result in a shortage of irrigation water early in the season.

MISSOURI RIVER DRAINAGE

Snow - The mountain snow pack is deficient over the entire drainage.

Snow water equivalent of the snow is generally in the 25 to 65 per cent average range. Many snow courses have near minimum water equivalent of record for this date. Snow pack in the Highwood and Belt Mountains appears to be a little better, but still below average. Soils under the snow pack are drier than usual except for near average conditions in extreme headwaters of the Big Hole and the Beaverhead Rivers.

Streamflow - Volume runoff forecasts will be issued after the February 1 snow surveys. Based on current soil moisture and snow pack, runoff during spring and summer months will be 50 to 75 per cent average.

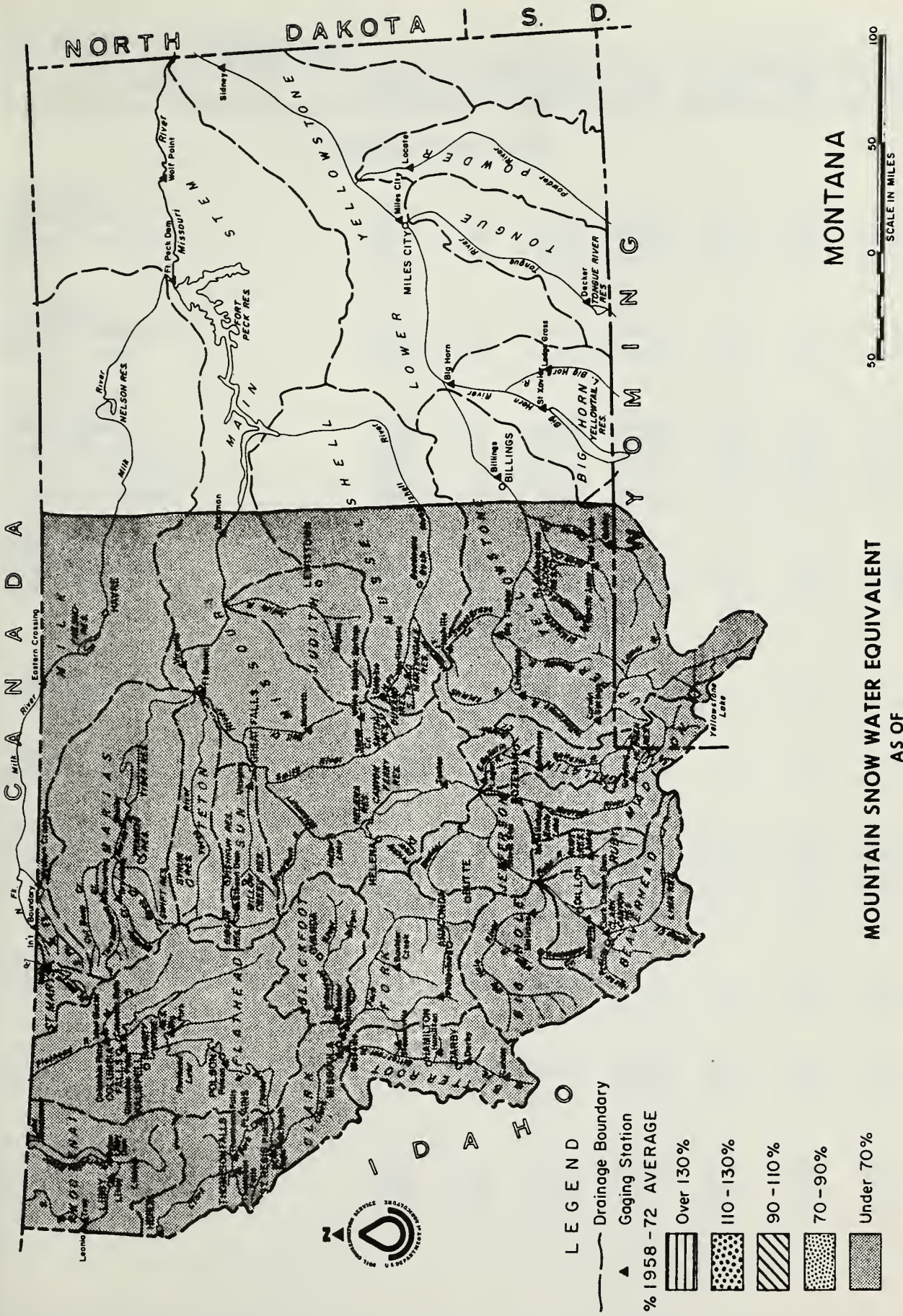
YELLOWSTONE RIVER DRAINAGE

Snow - Snow deposition has been well below average in all areas. The current water level of the snow pack is 30 to 70 per cent average. Snowfall intensity increased during recent storms, but snow levels remain well below average. Soils under the snow pack are drier than normal.

Streamflow - Forecasts of streamflow volume will be issued after February 1 snow surveys. With current snow and moisture conditions, streamflows during the spring and summer months may be in the 55 to 65 per cent average range.

SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF:	
		Last Year	Average
<u>COLUMBIA RIVER DRAINAGE</u>			
Kootenai	-	-	-
Flathead	10	53	47
Upper Clark Fork	18	30	44
Lower Clark Fork	3	31	31
Bitterroot	7	31	44
<u>MISSOURI RIVER DRAINAGE</u>			
Jefferson	11	24	34
Madison	8	20	29
Gallatin	10	31	45
Missouri Main Stem	7	42	61
Judith - Musselshell	4	58	81
Marias - Teton - Sun	3	52	45
Milk	3	65	50
<u>YELLOWSTONE RIVER DRAINAGE</u>			
Yellowstone (above Bighorn)	14	30	48
Big Horn	-	-	-
Little Big Horn	-	-	-
Tongue	-	-	-
Powder	-	-	-
<u>SASKATCHEWAN RIVER DRAINAGE</u>			
Bow	-	-	-
St. Mary's	1	65	36



SOIL MOISTURE

November 1976

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †

COLUMBIA RIVER BASINKootenai

Baree Trail	3800	48	7.5	11-2	4.4	6.7	5.6
Murphy Lake R.S.	3000	48	22.6	11-11	18.9	19.4	18.8
Raven	3050	48	23.0	11-2	13.5	14.4	16.1

Flathead

Desert Mountain	5600	54	8.4	10-28	5.2	8.3	6.6
Marias Pass	5250	54	6.5	10-25	3.4	5.4	4.4

Clark Fork

Black Pine	7100	48	10.0	10-28	7.8	8.7	7.9
Lubrecht Forest	4100	48	26.3	11-1	14.3	18.6	14.7
Seeley Lake R.S.	4030	48	11.9	11-2	4.9	10.6	4.9
Skalkaho Summit	7260	48	10.8	10-28	9.7	10.6	10.1

Bitterroot

Gibbons Pass	7100	48	7.1	11-1	5.4	6.1	4.9
Lolo Pass	5250	48	10.6	10-29	7.0	7.8	5.3

MISSOURI RIVER BASINBeaverhead

Lakeview	6700	48	15.3	10-31	11.6	13.3	8.6
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Madison

West Yellowstone	6700	48	6.5	10-31	2.5	2.4	2.7
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Gallatin

Bridger Bowl	7250	48	17.0	11-3	14.8	14.9	15.4
College Site No. 2	4856	54	17.7	10-29	11.2	14.4	11.3
Lick Creek	6860	48	18.8	11-2	14.6	16.3	16.6
Twenty-One Mile	7150	48	10.0	11-2	5.0	4.3	5.0

Missouri Main Stem

Kings Hill	7420	48	11.8	-	-	9.0	7.8
Stemple Pass	6350	48	5.9	11-2	3.1	5.6	4.0

Milk

Beaver Creek	3950	48	20.9	10-28	6.7	8.9	7.7
Rocky Boy	4700	36	10.1	10-28	6.1	9.1	7.9

Yellowstone

Battle Ridge	6020	48	17.6	11-3	9.0	12.9	11.7
Northeast Entrance	7360	48	9.4	10-31	6.9	6.0	6.4
PMC Dryland	3700	48	20.7	11-1	5.3	6.2	-

† Average for period of record.

SOIL MOISTURE

December 1976

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †

COLUMBIA RIVER BASINKootenai

Baree Trail	3800	48	7.5	11-30	5.4	6.8	6.2
Murphy Lake R. S.	3000	48	22.6	12-3	19.0	19.4	19.2
Raven	3050	48	23.0	11-30	13.7	14.5	17.6

Flathead

Desert Mountain	5600	54	8.4	-	-	-	-
Marias Pass	5250	54	6.5	11-22	3.6	5.8	4.8

Clark Fork

Black Pine	7100	48	10.0	12-1	6.8	8.5	7.9
Lubrecht Forest	4100	48	26.3	12-3	14.3	24.0	15.8
Seeley Lake R. S.	4030	48	11.9	12-7	5.1	11.6	5.9
Skalkaho Summit	7260	48	10.8	12-1	8.6	-	-

Bitterroot

Gibbons Pass	7100	48	7.1	12-5	4.6	6.0	4.8
Lolo Pass	5250	48	10.6	12-1	7.4	7.8	5.9

MISSOURI RIVER BASINBeaverhead

Lakeview	6700	48	15.3	10-30	10.0	12.1	9.4
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Madison

West Yellowstone	6700	48	6.5	12-1	1.8	2.0	2.6
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Gallatin

Bridger Bowl	7250	48	17.0	11-30	14.4	14.9	15.4
College Site No. 2	4856	54	17.7	12-3	10.2	16.5	13.1
Lick Creek	6860	48	18.8	11-30	13.5	-	16.1
Twenty-One Mile	7150	48	10.0	12-1	5.0	3.8	4.5

Missouri Main Stem

Kings Hill	7420	48	11.8	11-30	5.3	8.5	7.5
Stemple Pass	6350	48	5.9	12-10	3.0	4.8	4.0

Milk

Beaver Creek	3950	48	20.9	11-29	6.6	8.5	7.6
Rocky Boy	4700	36	10.1	11-29	6.2	8.5	7.9

Yellowstone

Battle Ridge	6020	48	17.6	11-30	9.0	14.5	12.7
Northeast Entrance	7350	48	9.4	12-3	5.7	5.1	6.4
PMC Dryland	3700	48	20.7	11-29	5.7	5.9	-

† Average for period of record.

SOIL MOISTURE January 1977

DRAINAGE BASIN and/or STATION		Profile (Inches)		Date of Survey	Soil Moisture (Inches)		
Name	Elevation	Depth	Capacity		This Year	Last Year	Average †

COLUMBIA RIVER BASIN

<u>Kootenai</u>							
Baree Trail	3800	48	7.5	1-3	4.7	-	-
Murphy Lake R. S.	3000	48	22.6	1-4	19.0	19.5	19.4
Raven	3050	48	23.0	1-3	13.7	16.0	17.6

<u>Flathead</u>							
Desert Mountain	5600	54	8.4	1-3	5.2	8.6	7.0
Marias Pass	5250	54	6.5	12-15	3.6	6.3	4.9

<u>Clark Fork</u>							
Black Pine	7100	48	10.0			8.4	7.5
Lubrecht Forest	4100	48	26.8	12-29	14.0	23.7	14.9
Seeley Lake R. S.	4030	48	11.9	1-3	4.7	11.5	6.5
Skalkaho Summit	7260	48	10.8	-	-	-	-

<u>Bitterroot</u>							
Gibbons Pass	7100	48	7.1	12-29	3.6	6.0	4.7
Lolo Pass	5250	48	10.6	-	-	7.8	5.9

MISSOURI RIVER BASIN

<u>Beaverhead</u>							
Lakeview	6700	48	15.3	12-30	8.1	11.9	9.4

<u>Madison</u>							
West Yellowstone	6700	48	6.5	1-1	1.3	2.0	2.5

<u>Gallatin</u>							
Bridger Bowl	7250	48	17.0	12-29	15.6	14.7	15.5
College Site No. 2	4856	54	17.7	12-31	8.6	17.0	13.3
Lick Creek	6860	48	18.8	-	-	14.2	15.5
Twenty-One Mile	7150	48	10.0	12-31	2.2	4.1	4.4

<u>Missouri Main Stem</u>							
Kings Hill	7420	48	11.8	12-27	4.8	8.0	7.1
Stemple Pass	6350	48	5.9	1-3	3.3	5.3	4.0

<u>Milk</u>							
Beaver Creek	3950	48	20.9	12-30	8.0	8.7	7.6
Rocky Boy	4700	36	10.1	12-30	6.1	8.5	7.4

<u>Yellowstone</u>							
Battle Ridge	6020	48	17.6	12-29	8.6	12.9	12.5
Northeast Entrance	7350	48	9.4	12-27	4.4	5.1	6.1
PMC Dryland	3700	48	20.7			6.6	-

† Average for period of record.

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
<u>COLUMBIA RIVER BASIN</u>					
Kootenai	Koocanusa	5,694.0	3,736.0	3,734.0	-
Flathead	Hungry Horse	3,428.0	2,650.0	2,953.0	2,766.0
	Flathead Lake	1,791.0	1,254.0	1,462.0	1,423.0
	Camas (4)	45.2	14.9	16.6	22.1
Clark Fork	Mission Valley (8)	100.3	43.0	54.8	31.4
	Georgetown Lake	31.0	30.8	30.7	27.9
	Lower Willow Creek	4.9	2.2	3.8	1.1
	Nevada Creek	12.6	3.9	9.0	4.3
	Noxon Rapids	334.6	322.4	295.5	320.5
Bitterroot	Como	34.9	7.3	-	8.0
	Painted Rocks	31.7	0.0	23.2	23.5

MISSOURI RIVER BASIN

Beaverhead	Clark Canyon	328.9	157.5	158.0	138.9
	Lima	84.0	-	43.7	31.2
Ruby	Ruby	38.8		21.1	20.0
Madison	Hebgen Lake	377.5	221.8	252.3	201.9
	Ennis Lake	41.0	34.1	35.2	36.7
Gallatin	Middle Creek	8.0	2.7	3.3	3.0
Missouri	Canyon Ferry	2,043.0	1,887.0	1,837.0	1,717.0
	Hauser & Helena	61.9	62.5	61.9	59.6
	Lake Helena	10.4	10.7	10.4	9.6
	Holter Lake	81.9	79.3	80.0	71.3
	Smith River	10.6	-	9.3	5.7
	Bair	7.0		5.3	4.0
	Martinsdale	23.1		17.5	7.6
	Deadman's Basin	72.2	44.9	54.4	41.2
	Fort Peck Lake	19,140.0	16,641.0	18,180.0	13,450.0
	Gibson	99.0	59.0	65.1	36.9
Sun	Willow Creek	32.2	26.6	26.9	18.6
	Pishkun	32.0	16.6	17.9	17.7
	Lower Two Medicine	11.9		-	-
Marias	Four Horns	19.2		-	-
	Swift	30.0		23.9	14.1
	Lake Francis	111.9		94.7	78.1
	Tiber	1,347.0	534.3	583.0	579.1
Milk	Beaver Creek	3.5		1.3	-
	Fresno	127.2	68.6	101.6	59.0
	Nelson	66.8	48.7	52.2	44.4
	Lake Sherburne	66.2	13.3	25.7	16.5
Yellowstone	Mystic Lake	21.0	5.7	12.6	14.1
	Tongue River	68.0		34.0	25.8
	Cooney	27.4		12.2	13.4
Bighorn	Bighorn Lake	1,356.0	947.9	914.8	880.8

Average based on 1958-72 period.

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
ARCH FALLS	7350	12/28	12	2.2	9.5	5.5
BADGER PASS	6900	1/05	48	10.5A	21.5	21.2
BANFIELD MOUNTAIN PILLOW	5600	1/01	SP	2.0	10.6	9.6
BASIN CREEK	7180	12/27	6	.8	-	-
BATTLE RIDGE	6020	12/29	8	1.3	5.2	3.0
BEAR PAW SKI AREA	5200	12/30	14	1.6	-	2.6
BIG COULEE	5100	12/28	16	3.9	2.8	-
BIG SKY	7700	12/29	18	3.5	9.1	7.2
BIG SPRINGS (ID)	6500	12/31	10	1.8	10.5	7.8
BLACK BEAR	7950	12/29	20	3.7	24.8	-
BLACK BEAR PILLOW	7950	12/29	SP	5.3	21.7	-
BLACK PINE	7100	12/29	11	1.6	9.0	3.4
BLACK PINE PILLOW	7100	12/29	SP	2.0	11.3	5.4
BLUE LAKE	5900	1/05	28	5.0A	8.0	11.8
BOXELDER CREEK	5100	12/30	17	3.2	-	-
BRIDGER BOWL	7250	12/29	24	5.6	17.8	12.0
BRIDGER BOWL PILLOW	7250	12/29	SP	6.8	16.7	13.2
BULL MOUNTAIN	6600	12/30	5	.6	3.2	-
CAMP CREEK (ID)	6800	12/29	0	.0	4.3	4.3
CANYON (WY)	7750	12/31	17	3.2	10.4	6.1
CARROT BASIN	9000	12/30	23	4.4	20.8	17.0
CARROT BASIN PILLOW	9000	12/30	SP	4.9	16.2	10.9
CHESSMAN RESERVOIR	6200	12/28	4	1.3	1.6	1.3
COLE CREEK	7850	12/29	14	3.3	11.0	-
COLE CREEK PILLOW	7850	12/29	SP	3.8	10.2	-
COMBINATION	5600	12/29	7	.8	3.0	2.6
COMBINATION PILLOW	5600	12/29	SP	1.7	3.2	-
COOKE STATION	8150	12/27	25	4.4	14.0	-
COYOTE HILL	4200	1/03	14	2.3	5.0	4.5
DALY CREEK	5780	12/28	11	2.0	7.0	-
DEADMAN CREEK	6450	12/27	0	4.9	6.4	4.3
DEADMAN CREEK PILLOW	6450	12/27	SP	4.7	5.5	4.8
DESERT MOUNTAIN	5600	1/03	16	3.8	5.2	7.3
DEVILS SLIUE	8100	12/28	26	6.2	14.8	10.1
DISCOVERY BASIN	7050	12/28	12	2.3	7.4	-
DIX HILL	6400	1/03	12	2.2	6.4	-
EMERY CREEK	4350	1/03	19	3.8	4.6	-
EMERY CREEK PILLOW	4350	1/03	SP	3.4	-	-
FISH CREEK	8000	12/27	6	.9	-	-
FISHER CREEK	9100	12/27	42	7.9	26.2	14.4
FISHER CREEK PILLOW	9100	12/27	SP	9.4	24.3	14.8
FLEECER RIDGE	7500	12/30	10	1.4	8.4	-
FOURTH OF JULY	3450	1/03	4	.8	-	-
FRIDAY HILL	4620	1/03	16	3.8	-	-
FROHNER MEADOWS	6480	12/28	9	2.0	3.7	-
FROHNER MEADOWS PILLOW	6480	12/28	SP	1.9	5.0	-
GIBBONS PASS	7100	12/29	18	3.8	11.5	9.5
GRIZZLY PEAK	8400	12/29	13	3.2	10.3	8.7

Average based On 1958-72 period. A - Aerial observation; water content estimated.

SP - Snow Pillow observation; water content only.

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average
NAME	Elevation					
HEBGEN DAM	6550	12/29	14	2.6	7.6	4.6
HELL ROARING DIVIDE	5770	1/03	31	7.2	11.6	14.1
HIGHWOOD DIVIDE	5650	12/28	23	5.0	5.8	-
HIGHWOOD STATION	4600	12/28	15	3.8	2.7	-
HOLBROOK	4530	1/05	28	4.0A	5.0	4.3
HOOD MEADOW	6600	12/28	11	2.2	7.5	4.5
HOODOO BASIN PILLOW	6000	12/28	SP	6.4	23.4	19.1
ISLAND PARK (ID)	6310	12/31	8	1.4	8.8	6.1
KINGS HILL	7500	12/27	24	4.3	8.5	-
LAKE CAMP (WY)	7850	1/02	10	1.0	6.6	3.5
LAKE CREEK	6100	12/29	8	1.1	6.0	-
LICK CREEK	6860	12/28	10	1.9	6.3	3.9
LICK CREEK PILLOW	6860	12/28	SP	4.0	6.1	4.0
LOLO PASS (ID)	5230	12/28	26	4.2	13.8	11.7
LONE MOUNTAIN	8880	12/29	22	4.7	14.9	9.8
LOOKOUT (ID)	5250	12/30	24	4.8	11.8	15.6
LOST HORSE	5940	12/30	26	5.9	17.4	12.0
LUBRECHT FLUME	4800	12/30	9	1.2	3.4	3.1
LUBRECHT FLUME PILLOW	4800	12/30	SP	1.3	-	2.5
LUBRECHT FOREST # 3	5450	12/30	8	1.2	3.8	3.2
LUBRECHT FOREST # 4	4650	12/30	4	.7	1.0	1.8
LUBRECHT FOREST # 6	4040	12/31	4	.6	1.2	1.8
LUBRECHT HYDROPLOT	4200	12/30	9	1.0	3.5	2.7
LUPINE CREEK (WY)	7300	1/02	12	1.6	8.0	4.4
MADISON PLATEAU	7750	12/29	13	2.1	14.8	8.7
MADISON PLATEAU PILLOW	7750	12/29	SP	4.2	15.3	9.4
MARIAS PASS	5250	12/30	13	2.8	4.3	7.7
MAYNARD CREEK	6210	12/29	16	3.0	9.9	7.4
MAYNARD CREEK PILLOW	6210	12/29	SP	4.2	6.0	5.4
MEADOW CREEK PILLOW	4000	12/30	SP	3.4	.9	-
MOULTON RESERVOIR	6850	12/28	6	.9	-	-
MOUNT LOCKHART	6400	12/30	20	4.4	13.6	-
MOUNT LOCKHART PILLOW	6400	12/30	SP	4.1	11.1	8.3
NEWTON MOUNTAIN	5600	1/03	21	4.7	-	-
NOISY BASIN	6040	1/04	49	14.9	16.9	-
NOISY BASIN PILLOW	6040	1/04	SP	12.2	16.2	-
NOISY CREEK	3600	1/04	8	1.2	1.0	-
NORRIS BASIN (WY)	7500	1/04	25	2.2	7.7	4.6
NORTH FK. ELK CREEK	6250	1/03	15	2.4	7.4	5.6
NORTH FK. ELK CREEK PILL	6250	1/03	SP	2.3	8.1	4.7
NORTHEAST ENTRANCE	7400	12/27	15	2.6	6.6	3.6
NORTHEAST ENTRANCE PILL.	7400	12/27	SP	2.3	7.1	4.0
OLD FAITHFUL(WY)	7360	12/29	8	1.5	9.6	-
OPHIR PARK	7150	1/02	17	4.0	12.2	-
PETERSON MEADOWS	7200	1/03	10	2.0	6.9	3.8
PETERSON MEADOWS PILLOW	7200	1/03	SP	1.7	9.2	-
PIPESTONE PASS	7200	1/02	0	.0	5.6	2.3
POORMAN CREEK PILLOW	5100	1/01	SP	4.1	11.5	12.1
RED TOP	5260	1/03	19	4.4	-	-
ROCKER PEAK	8000	12/28	12	2.3	10.4	6.8

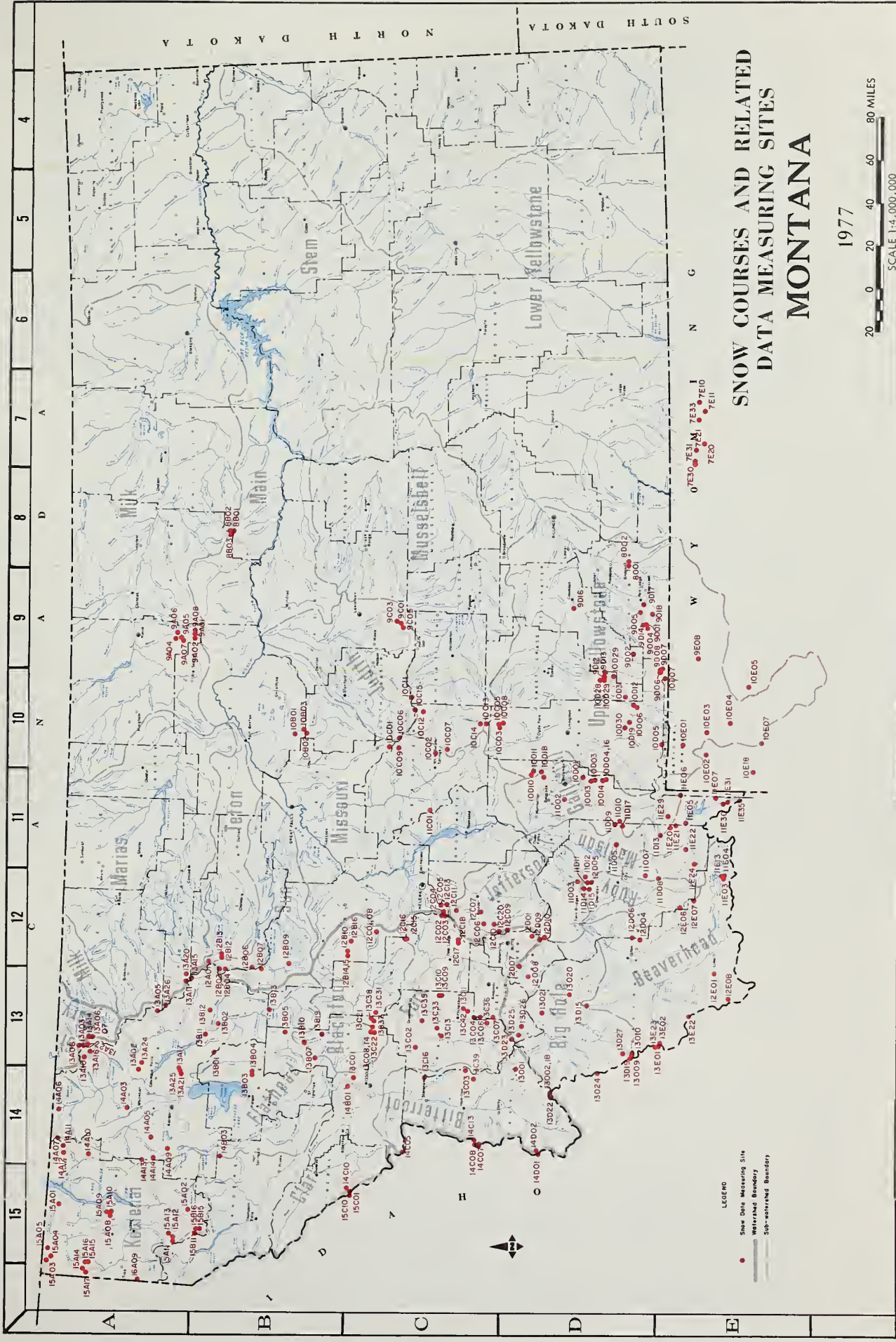
Average based On 1958-72 period. A - Aerial observation; water content estimated.

SP - Snow Pillow observation; water content only.

SNOW

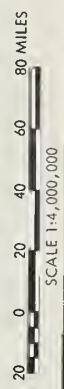
DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average
ROCKER PEAK PILLOW	8000	12/28	SP	2.1	11.4	7.2
ROCKY BOY	4700	12/30	11	1.6	-	1.8
ROCKY BOY PILLOW	4700	12/30	SP	2.4	3.4	1.4
SADDLE MOUNTAIN	7940	12/29	20	4.2	16.1	10.3
SADDLE MOUNTAIN PILLOW	7940	12/29	SP	4.3	16.8	11.6
SAWTELL MOUNTAIN (ID)	8710	12/31	15	1.5	17.1	14.0
SHOWER FALLS	8100	12/28	30	7.6	15.5	11.0
SHOWER FALLS PILLOW	8100	12/28	SP	7.9	15.3	11.5
SILVER RUN	6630	12/29	5	1.4	-	-
SILVER RUN PILLOW	6630	12/29	0	.9	-	-
SPOTTED BEAR MOUNTAIN	7000	1/05	20	3.5A	6.0	7.2
SPUR PARK	8000	12/27	30	6.1	12.7	9.2
SPUR PARK PILLOW	8100	12/27	SP	7.4	13.3	10.2
STORM LAKE	7780	1/03	15	3.0	9.7	5.6
SUCKER CREEK	3960	12/30	2	.3	-	-
SYLVAN PASS (WY)	7100	12/29	13	2.3	10.0	5.7
TARGHEE PASS (ID)	7000	12/31	11	2.0	8.2	6.5
TAYLOR ROAD	4080	12/30	11	1.4	-	-
TEN MILE LOWER	6600	12/28	10	1.9	4.3	3.1
TEN MILE MIDDLE	6800	12/28	12	2.0	7.7	4.9
TEN MILE UPPER	8000	12/28	13	3.2	8.6	6.0
TEPEE CREEK	8000	12/29	10	1.9	9.6	-
TEPEE CREEK PILLOW	8000	12/29	SP	1.9	7.9	-
THUMB DIVIDE (WY)	7900	12/29	12	1.3	11.1	9.2
TV MOUNTAIN	6800	12/29	11	1.9	9.1	8.0
TWELVEMILE CREEK	5600	12/30	25	4.8	7.7	7.2
TWELVEMILE CREEK PILLOW	5600	12/30	SP	3.4	9.6	6.2
TWENTY-ONE MILE	7150	12/30	14	2.2	10.6	7.3
TWIN CREEKS	3580	1/05	15	2.5A	5.0	5.7
TWIN LAKES	6510	12/30	32	5.8	24.0	15.5
TWIN LAKES PILLOW	6400	12/30	SP	6.7	26.2	16.5
VALLEY VIEW (ID)	6500	12/31	8	1.4	7.8	6.3
WALDRON	5600	12/30	12	2.2	3.4	-
WALDRON PILLOW	5600	12/30	SP	2.4	4.3	5.2
WEST YELLOWSTONE	6700	12/30	9	.9	8.6	4.6
WEST YELLOWSTONE PILLOW	6700	1/01	SP	.9	6.7	3.8
WHISKEY CREEK	6800	12/29	12	2.1	-	-
WHISKEY CREEK PILLOW	6800	12/29	SP	1.9	11.7	-
WHITE ELEPHANT (ID)	7700	12/31	11	.7	14.0	-
WHITE MILL	8700	12/27	31	5.2	20.8	-
WHITE MILL PILLOW	8700	12/27	SP	6.0	17.6	-
WILLOW CREEK	6500	12/29	9	1.5	5.4	-

Average based On 1958-72 period. A - Aerial observation; water content estimated.
 SP - Snow Pillow observation; water content only.



SNOW COURSES AND RELATED
DATA MEASURING SITES
MONTANA

1977



Agencies and Organizations Cooperating in Montana Snow Surveys

GOVERNMENT AGENCIES

Canada:

Water Survey of Canada, Calgary, Department of the
Environment
Water Resources Service, Department of Lands, Forests
and Water Resources, British Columbia
Alberta Environment, Edmonton, Alberta

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
Soil Conservation Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
National Park Service

STATE

Montana Association of Conservation Districts
Montana Department of Fish and Game
Montana Department of Natural Resources and
Conservation
Montana State University - Agricultural Experiment
Station
University of Montana - School of Forestry

PRIVATE

Montana Power Company
Butte Water Company
The Anaconda Company

Other organizations and individuals furnish valuable
information for snow survey reports. Their cooperation
is gratefully acknowledged.

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